

Appl. No. 10/045,267  
Amdt. Dated April 19, 2005  
Reply to Office Action of February 23, 2005

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### Listing of Claims

Claims 1 (currently amended) A method for dynamically allocating Internet Protocol (IP) addresses for a wireless cell, said method comprising the steps of :

    determining at a system IP address server a total Internet Protocol address pool for the wireless cell;

    partitioning the Internet Protocol address pool into groups eff of address spaces for use with an associated user group within the wireless cell;

    monitoring IP types and frequency of address demands associated with the wireless cell;

the wireless cell distinguishing between time sensitive IP address demands and time insensitive IP address demands ; and

the system IP address server updating the groups of address spaces using an IP server based upon the number of the time sensitive and time insensitive demands as distinguished by the wireless cell.

Claim 2 (original) The method of claim 1, wherein said step of determining a total Internet Protocol address pool comprises the step of:

    performing a predictive analysis to allocate Internet Protocol space for the associated group within the wireless cell.

Claim 3 (original) the method of claim 2, wherein said predictive analysis is performed using a moving weighted average.

Claim 4 (currently amended) The method of claim 3, wherein said step of using said moving weighted average comprises the steps of:

    recording an average number of requests from hosts in each user group; and

    computing an average number of total IP addresses over a suitable fixed period of time.

Claim 5 (cancelled)

Claim 6 (original) The method of claim 2, wherein the user group is one of a wireless handoff terminal, a resident terminal and a wired terminal.

Claim 7 (original) The method of claim 1, wherein said step of determining a total IP address pool includes the further step of utilizing at least one of:

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real-time data including present network IP address demands associated with the wireless cell;

non-real time data including previous IP address demands associated with the wireless cell;

call blocking parameters;

quality of service and performance parameters; and

third party data including third party ISP address allocation specifications, quality of service parameters or performance parameters.

Claim 8 (original) The method of claim 1, further comprising the step of:

assigning a priority level to a mobile host requesting an IP address associated with each wireless cell;

wherein the priority level is set at a first level in the case of a handoff host and at a second level in the case of a resident mobile host, and the first priority level is greater than the second priority level.

Claims 9-15 (cancelled)

Claim 16 (original) The method of claim 2, further comprising the step of:

establishing guard bands for the device categories to ensure a minimum number of Internet protocol addresses are available for the device categories based on the predictive analysis.

Claim 17 (currently amended) A method for dynamically allocating Internet Protocol (IP) addresses for a wireless cell, said method comprising the steps of:

performing at a system IP address server a predictive analysis to allocate Internet Protocol address space for an associated user group within the cell;

partitioning the Internet Protocol address space into groups of address spaces for use with an associated user group based on the predictive analysis;

distinguishing at the wireless cell between time sensitive IP address demands and time insensitive IP address demands;

the IP address server updating the Internet Protocol address space via ~~an IP address server~~ in response to said distinguishing step; and

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establishing guard bands for the device categories to ensure a minimum number of Internet protocol Protocol addresses are available for the device categories.

Claims 18-23 (cancelled)

Claim 24 (currently amended) The method of claim 17, wherein the device categories comprises comprise at least one of wireless devices during handoff, resident wireless devices and wired devices.

Claim 25 (original) The method of claim 17, further comprising the step of:

adjusting the guard bands based on the predictive analysis

Claim 26 (original) The method of claim 25, wherein said predictive analysis is performed using a moving weighted mean average.

Claim 27 (currently amended) The method of claim 26, wherein said using said moving weighted average comprises the steps of:

Claim 28 (cancelled)

Claim 29 (currently amended) A system for dynamically allocating Internet Protocol addresses for wireless terminals in a wireless cell in a wireless network, said system comprising:

an IP address server which determines a total Internet Protocol address pool for the wireless terminals of the a wireless cell and a partitioned address pool ~~off~~ of groups of address spaces for use with an associated ~~user~~ group of wireless terminals within the cell; and

a wireless address agent residing in a the wireless network and including a time sensitive IP address pool;

wherein the wireless IP agent handles requests for IP addresses from at least one of time sensitive and time in-sensitive wireless terminals, categorizes the wireless terminals as one of a time sensitive handoff host or a time sensitive resident host and a time in-sensitive handoff host or a time in-sensitive resident host, and forwards ~~the~~ an IP address associated with the time sensitive handoff host or the time sensitive resident host to the time sensitive terminals terminal from a the time sensitive IP address pool in the wireless IP address agent, and forwards the IP address request associated with the time in-sensitive handoff host or the time in-sensitive resident host to the IP address server; and

wherein the IP address server monitors address demands associated with the wireless cell and updates the groups of address spaces based on the IP address demands.

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Claim 30 (currently amended) A system for dynamically allocating Internet Protocol addresses for wireless terminals in a plurality of wireless cells in a wireless network, said system comprising:

an IP address server which determines a total Internet Protocol address pool for the wireless terminals for each of a the plurality of wireless cells and for each of a plurality of partitioned address pools of groups of address spaces for use with an associated user group of terminals within the cells; and

a plurality of wireless IP address agents residing in a the network and each including a time sensitive IP address pool; and

wherein each of the wireless IP agents handle handles requests for IP addresses from a plurality of time sensitive wireless terminals and time in-sensitive wireless terminals, categorizes each wireless terminal as one of a time sensitive handoff host or a time sensitive resident host and a time in-sensitive handoff host or a time in-sensitive resident host and forwards the IP address associated with the time sensitive handoff host or time sensitive resident host to time sensitive terminals from a the time sensitive IP address pool in the wireless IP address agent, and forwards the IP address request associated with the time in-sensitive handoff host or time in-sensitive resident host to the IP address server; and

~~wherein the plurality of servers monitor IP address demands associated with each of the plurality of wireless cells, and updates the groups of address spaces based on the IP address demands.~~

Claim 31 (new) A system for dynamically allocating Internet Protocol addresses for wireless cells in a communication network including wireless and wireline terminals, wireless address agents, and a system IP address server,

said system IP address server including a wireless handoff IP address pool, a wireless resident IP address pool, and a wired terminal IP address pool and a predictive analysis for allocating IP address between said pools; and

said wireless IP agents including a time-sensitive IP address pool which receives an allocation of addresses from said system IP address server and a classification process which determines if a wireless terminal requesting an IP address is a time-sensitive host or a time insensitive host, said wireless IP agent directly forwarding to the requesting wireless terminal an IP address from its time-sensitive IP address pool if the requesting terminal is a time-sensitive host and forwarding the request to the system IP address server if the requesting terminal is a time insensitive host.

Claim 32 (new) A method for dynamically allocating Internet Protocol addresses for wireless cells in a communication network including wireless and wireline terminals, wireless address agents, and a system IP address server, said method comprising the step of:

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said system IP address server predictively allocating IP addresses to a wireless handoff IP address pool, a wireless resident IP address pool, and a wired terminal IP address pool and forwarding to time sensitive address pools in said wireless IP address agents IP addresses;

each wireless IP agent upon receiving a request for an IP address from a wireless terminal determining if said request is time sensitive or time in-sensitive;

if said request is time sensitive, said wireless IP agent directly providing to said requesting wireless terminal an IP address from its time sensitive IP address pool; and

if said request is time in-sensitive, said wireless IP agent forwarding said request to said system IP address server.

**Claim 33 (new)** The method in accordance with claim 32 wherein said step of determining comprises receiving a predetermined byte-code in an option field within a DHCP request message from the requesting wireless terminal.

**Claim 34 (new)** The method in accordance with claim 33 wherein the predetermined byte-code represents a decimal number in a range of 128-254.